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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/810,684

03/29/2004

Takahiko Ueda

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06/15/2006

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EXAMINER

VU, PHU

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/810,684

Applicant(s)

UEDA ET AL.

Examiner

Phu Vu

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota 5807440.

Regarding claims 1-3, Kubota teaches a semitransparent reflector with transmittivity of 45 to 83%, reflectivity of 18-43%, and diffused reflectivity of 15 to 40% which leads to a R-Rd of 0 to 28% and T + R = 63 to 100% (see column 3 lines 43-55). The MPEP section 2144.05 states: "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976)"

Claims 1-8 and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraishi et al US Publication No. 2002/0027626 in view of Ijima 6906767 and in further view Arai 6778241.

Regarding claims 1-3, Hiraishi discloses a base layer and protective layers that contain a thermoplastic resin, and a flaky organic filler that is stretched in the same manner as in the applicant's specification. The applicant and Hiraishi share the same base material as applicant ([0041-0048] of the Hiraishi and [0032-0033] of applicants specification US Publication 2004/0246515). Applicant admits that the resin used to form the base layer is the same the resins used in the base layer the reference also uses as resins. The reference and applicant also share common flaky inorganic fine powders (see applicant's specification [0035] and Hiraishi [0055]). Applicant forms the semitransparent reflector through biaxially stretching of the film multi-layered film show overlapping ratios of stretching in the X and Y directions (see [0099] of the reference and [0054-0054] of publication of applicant's application). The reference also shows an overlapping concentration of the inorganic fine particles (see [0071] of the reference and [0038] of the application) and thickness of the base layers between the applicant's and the reference's overlap (see applicants application [0015] and reference's thickness [0072]) and thickness of the protective layers ([0077-0078] of the reference and [0044] of application).

Hiraishi fails to explicitly the transmittance, reflectance, and diffusion reflectance of claims 1-3.

Iijima teaches a transfective display with a large haze values overlapping the claimed ranges (see table 1) free of parallax and color mixing (see column 5 lines 60-68). Arai teaches a semitransparent reflector having a 40% reflectance and 60% transmittance as being preferable for display application (see column 6 lines 30-65).

Combining these values with a display showing haze values of Iijima's device $R-R_d = 2-38\%$.

The MPEP section 2144.05 states: **"In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976)"**

Therefore, at the time of the invention, it would have been obvious to modify Hirashi's semitransparent reflector to specifications according to Iijima and Arai in order to gain a display quality transreflector free of parallax and color mixing.

Regarding claim 4-6, the reference discloses a base layer and protective layer that contain a thermoplastic resin, and a flaky inorganic fine power (see claim 1 rejection). The reference fails to explicitly teach flaky pores of particular x/y aspect ratio (.1 to 10 or .4 to 1.5) and y/h aspect ratio 20 to 1000 or 40 to 500 and porosity (.1% to 20% or .1% to 15%), however applicant admits formation of flaky pores X/Y ratio is determined by the ratio of the stretch in the X direction to the Y direction (see [0054] of applicant's specification) and the size is a product of the areal draw ratio. The reference explicitly discloses similar (overlapping) areal draw ratios and draw ratios in the machine direction to the transverse direction. Applicant has argued that Hirashi only teaches monoaxial stretching and the draw treatment as being in the same direction as the monoaxial stretching however the specification clearly distinguishes between the two directions (see [0096]).

The reference discloses a preferred areal draw ratio of 6 to 50 and a preferred L_{md}/L_{dt} (stretch in machine direction to the transverse) of .2 to 1.4 (derived by $2/10$ to $5/3$ as the machine direction is disclosed to be 2 to 5 and the transverse direction is 3 to

10) are met by the reference as the stretching amounts are the same or at the very least similar such that they reference and applicants are obvious over the reference (see MPEP 2144.05 as cited in claim 1 rejection) therefore pores of the same size, shape, and porosity are obvious to a achieve uniformity, directionality and heat resistance (see [0159]). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art stretch the film such that the pores have an x/y aspect ratio (.1 to 10 or .4 to 1.5) and y/h aspect ratio 20 to 1000 or 40 to 500 and porosity (.1% to 20% or .1% to 15%) to achieve good uniformity, directionality and heat resistance.

Regarding claims 7 and 8, the reference teaches an aspect ratio to be 20 to 100 and a mean particle size to be 5 to 50 microns impart directionality and 10-40% preferably by weight (see [0069] of the reference and [0088]). This directly overlaps claim 7 and 8 ranges therefore which is obvious (see MPEP 2144.05 as cited in claim 1 rejection). The reference discloses 0% weight of particles in the protective layers which falls within the applicant's claimed range. The reference also shows the particulate made of inorganic or organic fiber (see [0054-0055]) Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use a particle size of 3 to 30 microns, aspect ratio of 2 to 100, and weight concentration of 30% in the in the base layer to impart directionality on the film.

Regarding claim 11-14, the reference teaches an overlapping draw ratio in the machine and transverse direction and areal draw ratio overlapping applicant's to achieve good uniformity, directionality and heat resistance. The MPEP states that overlapping ranges are obvious see MPEP section 2144.05 which is referenced in claim

1 rejection. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a draw ratio of .1 to 10 or .4 to 1.5 and a areal draw ratio of 9 to 80 times or 30 to 60 times to achieve uniformity directionality and heat resistance.

Regarding claim 15 and 16, the Hiraishi discloses a polyfin resin of propylene base having a melting point of greater than 140 degrees (see [0042] and [0056]).

Regarding claim 17, Hiraishi discloses film used in a display (see [0001]).

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraishi in view of Ijima in view of Arai in view of Kubota et al US Patent No. 5807440.

Regarding claims 9 and 10, the references disclose all the limitations of claims 9 and 10 except an absolute difference in Transmittance to Reflectance to be less than 60 or 40%. Kubota discloses a diffuser / reflector with an optimal difference of 63% or less maximum (see column 3 lines 48-52) to achieve color balance. While this is applied to a photovoltaic device the photovoltaic device at heart is merely a light source. The MPEP states that overlapping ranges are obvious see MPEP section 2144.05 which is referenced in claim 1 rejection. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to reduce the difference between transmittance and reflectance to below 60 or 40% to improve color balance.

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraishi in view of Ijima in view of Arai in view of Gunn et al US Patent No 6665027.

Regarding claims 17-20, the references do not teach a combined structure with 5 to 40% transmittance, 5 to 40 % reflectance whose sum ranges from 35 to 80%, with a whole reflectance and whole transmittance value of .35 to 1 times that of the diffuser however Gunn discloses an addition of a polarizer with 40% transmission efficiency to a diffuser with similar characteristics to form a display with transmission efficiency in excess of 32%. Since the prior art teaches the semitransparent reflector claims 17-20 applicant admits is formed by adding a Sanritz polarizer (applicant's application publication [0078]), which is considered obvious as it is a commercially available LCD polarizer. Addition of this polarizer to the diffuser of claim 1 would cut the overall transmittance and reflectance of the display by 60% and produce a whole transmittance and whole transmittance to be .4 times that of the values for the diffuser. Thus stacking this polarizer produces a display with T_p to be 24% R_p from 16%, and $T_p + R_p = 40\%$, R_p/R value of .4 and T_p/T value of .4 which produces 5 to 1 improvement in light efficiency over conventional liquid crystal displays.

The MPEP section 2144.05 states: In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976);

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to add a polarizer to which results in a device with T_p from 24% R_p from 16%, and $T_p + R_p$ from 40%, R_p/R value of .4 and T_p/T value of .4 which

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produces 5 to 1 improvement in light efficiency over conventional liquid crystal displays.

Conclusion

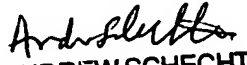
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562.

The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu
Examiner
AU 2871


ANDREW SCHECHTER
PRIMARY EXAMINER